

# Saving the Planet Starting In Your Back Yard!

## Invasive Plants: What's so bad about them?

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Most of us realize that species are in trouble all over the world

Living Planet Report October 2016 (World Wildlife Fund)

Wildlife in decline:

- Earth's vertebrates down 58% in past four decades
- Freshwater species populations declined by 81% !!!
- Predicts that by 2020, populations will have declined by two-thirds from 1970

# Species Extinction Crisis



**Current rates of species extinction  
100 to 1000 times  
those before human dominance.**

13% of remaining birds, 21% of mammals, 28% reptiles, 32% amphibians,  
21% of fish, 35% of invertebrates, 70% of plants threatened with extinction now. IUCN Redlist 2009

# How about Kentucky?

We have a lot of rural land after all, right?

## Threatened and Endangered Species: 53

Mammals: 5  
Birds: 4  
Fish: 8  
Crustacea: 1  
Mussels: 26  
Insects: 1  
Plants: 14

## Propagated and Candidate Species: 8

Crustacea: 1  
Insects: 5  
Plants: 1

MISSION CRITICAL!

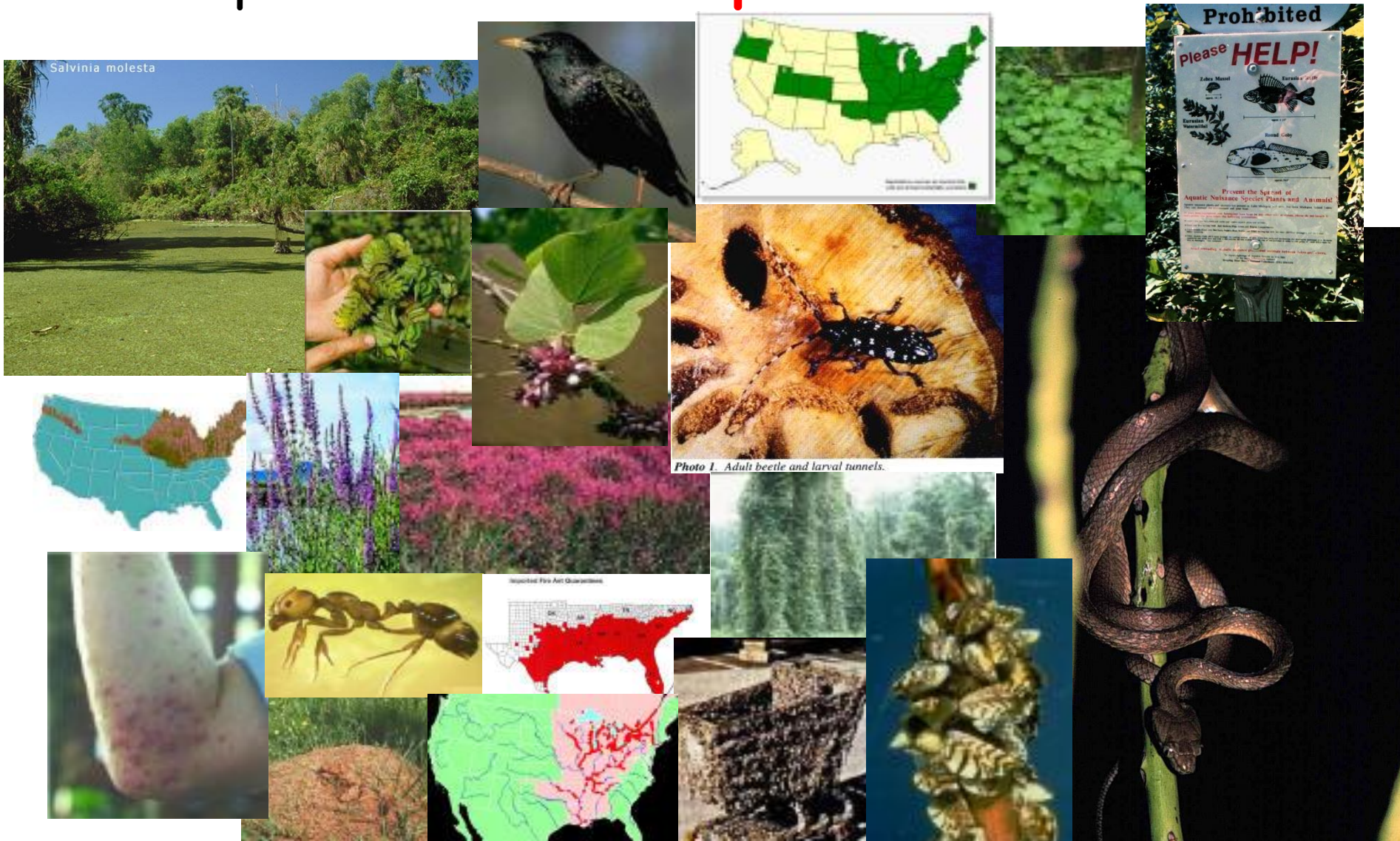
## Propagated Species: 40

Birds: 1  
Reptiles: 2  
Amphibians: 3  
Fish: 9  
Crustacea: 3  
Mussels & Snails: 10  
Insects: 6  
Plants: 6



# People

1. Primarily Habitat Loss and Fragmentation
2. Spread of **Exotic Species** all over the world





# People's Responses to Loss of Nature

- Setting aside Nature Reserves- OUR PARKS! (Reservation Ecology)
- Restoration of degraded land and waters (Restoration Ecology)

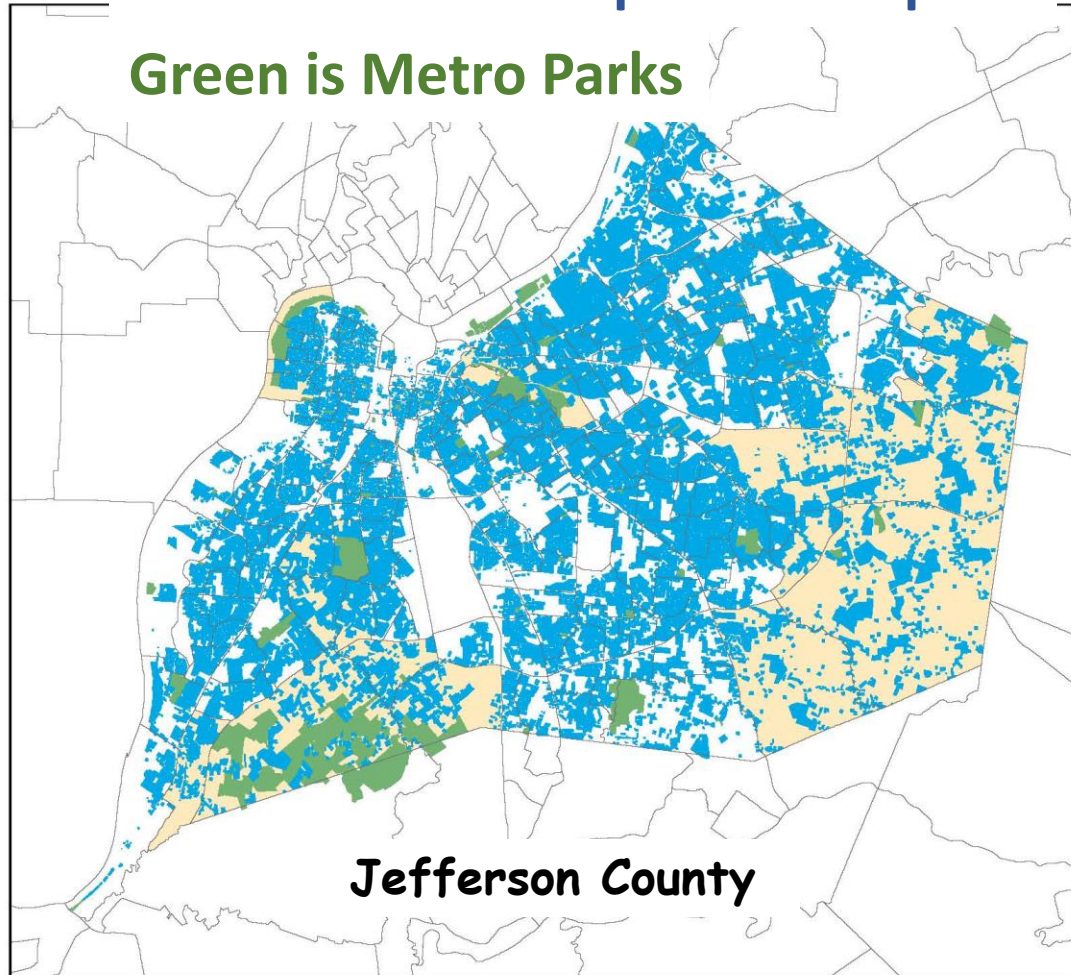
In our Parks, Restoration has focused on Invasive Plant Removals





Blue is residential plantable space

Green is Metro Parks



Jefferson County

Legend

- Census tracts
- Residential, plantable land
- Census tracts surrounding major parks
- Metro parks

But Restoration Success in Our Parks  
Depends  
On What Is Growing In People's Yards!

Plants and Animals Move Around

Our Parks Don't Have Walls!

- 43% of Jefferson County land is RESIDENTIAL
- 120 square miles (30%) of residential is plantable (blue on map) YARDS!
- 20 square miles of Parkland (GREEN on map)

# So, First Rule of Good Stewardship and Land Management Is: **FIRST, DO NO HARM!**

Do not allow invasive plants to grow on your property

If they jump into Natural Areas:

## What do these plants do?

Suppress native plants  
Drive some native plants to local extinction

Suppress tree seedling and sapling establishment

Change soil ecosystem processes like  
decomposition, nutrient cycling  
Change soil invertebrates

## Why Care?

Lose plant diversity, the base of the food web  
So affect vertebrates and invertebrates  
Affects pollinators  
Changes invertebrates that are bird food

Alter forest tree species or no forest over time

Set up nutrient conditions that favor invasives, not natives  
More nutrient loss to streams  
Change stream invertebrates (fish food)



# Most Dangerous Exotics for Natural Areas Around Louisville

## Shrub Honeysuckles

Amur honeysuckle  
Morrow's honeysuckle  
Fragrant honeysuckle

What do you see on the forest floor?



Photo credit: E. Levine



***Akebia quinata***  
**(Chocolate Vine)**





# Available at a Nursery Near You! And Online!

## *Akebia quinata* Chocolate Vine



The fruit has a delicious sweet water melon flavour and the flowers make a strong spicy chocolaty tea.



The stem can be taken internally to control bacterial and fungal infections.



The peeled stems are very pliable and are great for basket making and weaving.



Ideal for city and country growers alike. It can be trained up as a vine, or spread out as ground cover.



To learn more about the ways you can use *Akebia quinata* and over 7000 other plants, visit [PracticalPlants.org](http://PracticalPlants.org)

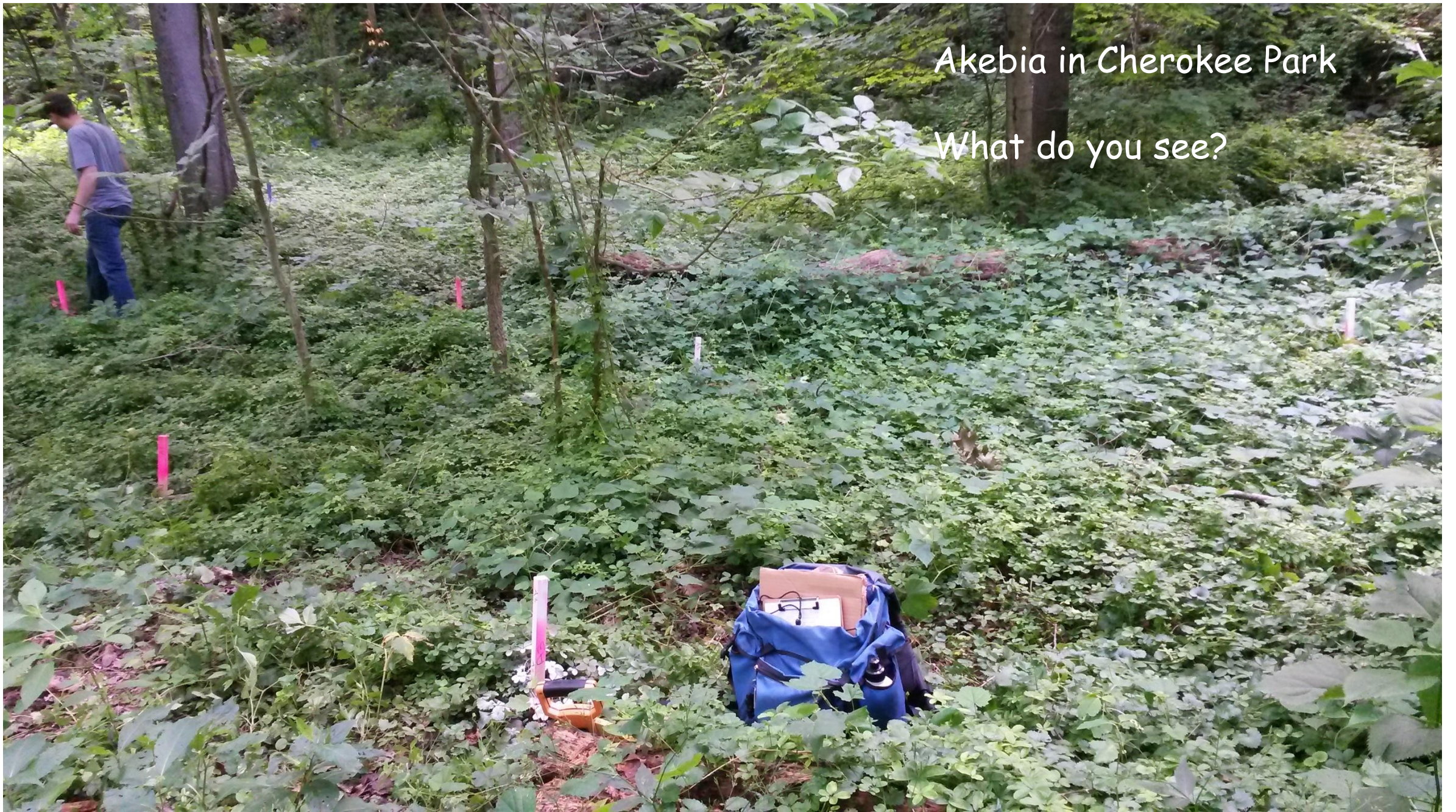


Native to China, Korea, and Japan.  
Planted as an ornamental in zones  
4-8 and known to seed into the  
landscape.



Akebia in Cherokee Park

What do you see?





*Euonymus fortunei*  
Wintercreeper





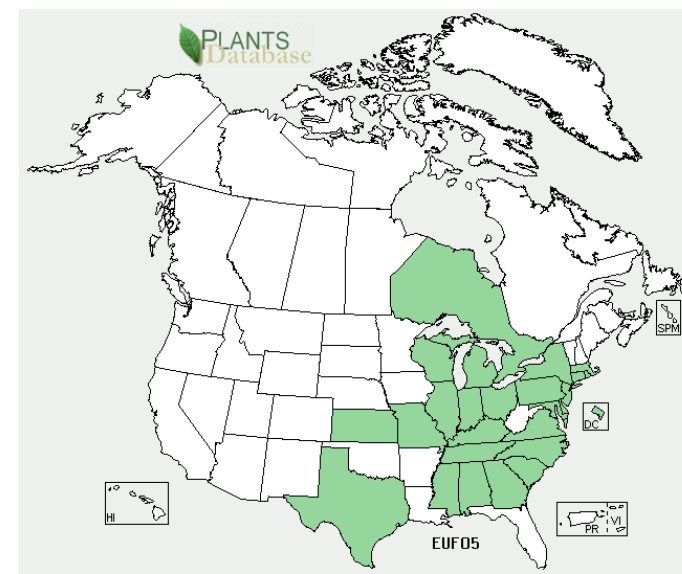
**Euonymus fortunei**  
**Wintercreeper**





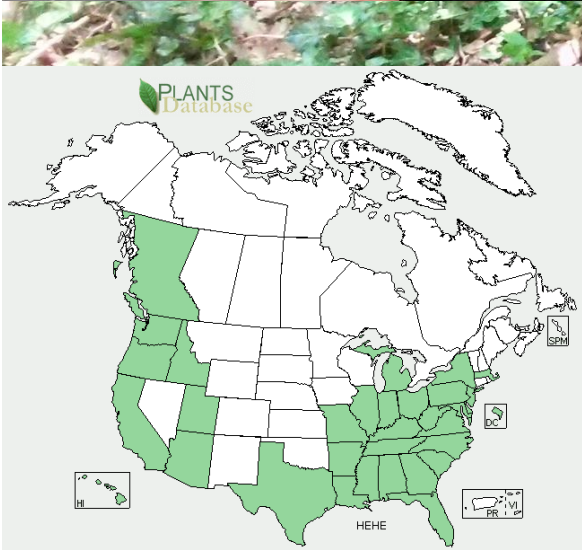


**Euonymus fortunei**  
**Wintercreeper**





English Ivy  
*Hedera helix*





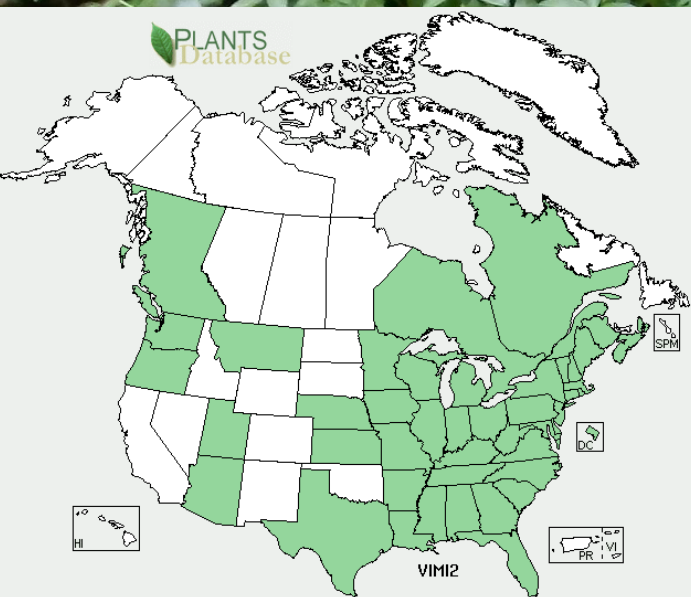
*Vinca minor*  
Periwinkle







*Vinca minor*  
Periwinkle





## 2007 - 2012 LOPC Campaign to Remove Exotic Shrubs & Vines



Fund-raising  
(\$2 million just for Cherokee Park)

Grants

Volunteers (ex. Wild Ones)



How Successful ?

Return of the Natives  
or  
The Non-Natives ?



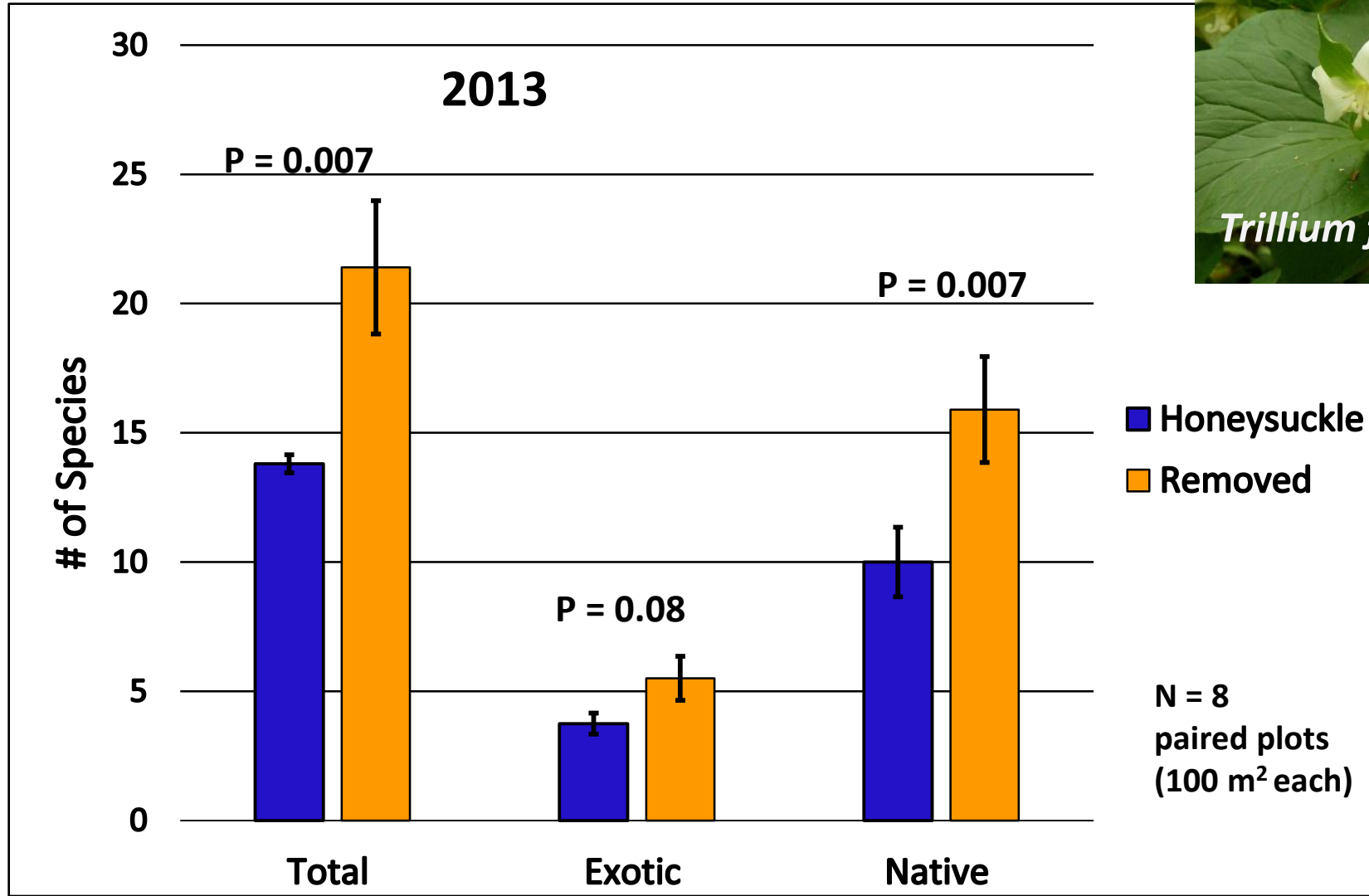
# Tree Recruitment Has Improved (number per hectare)

	<u>2008</u>	<u>2013</u>	<u>Increase</u>
Tree seedlings	4340	59719 (~24000/acre)	14 times
Tree saplings	2022	6080 (~2500/acre)	3 times
Species	26	43	1.7 times

N = 13 500 m<sup>2</sup> plots



# More Spring Herb Species 5 years After Honeysuckle Removal Mostly Natives





# Top Five Native Spring Herbs

(Coefficient of Conservatism 0-10)

Wood Hyacinth



Trout Lily



Waterleaf



White Snakeroot



Geum canadense

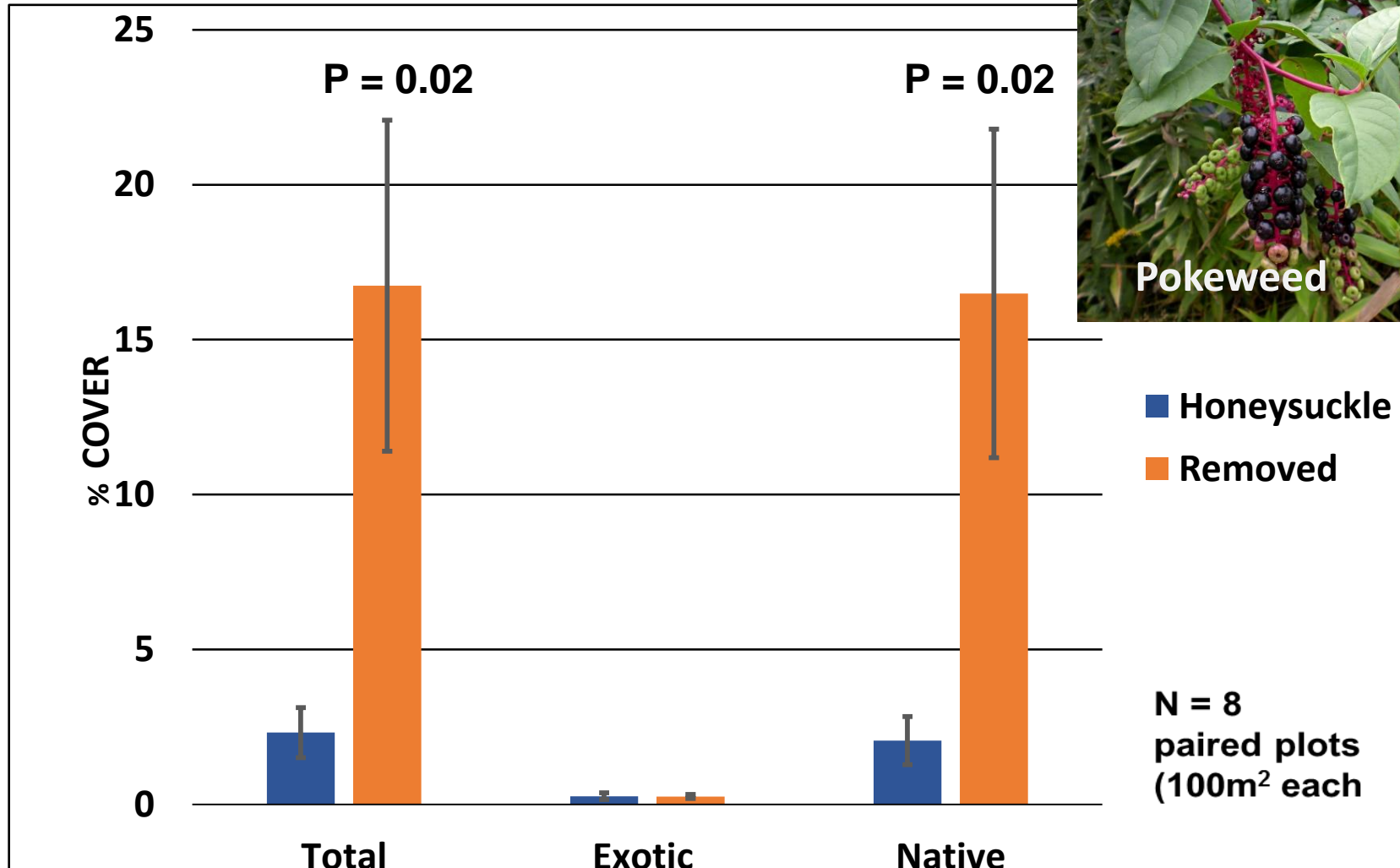


How have pollinators responded?

Higher trophic levels?

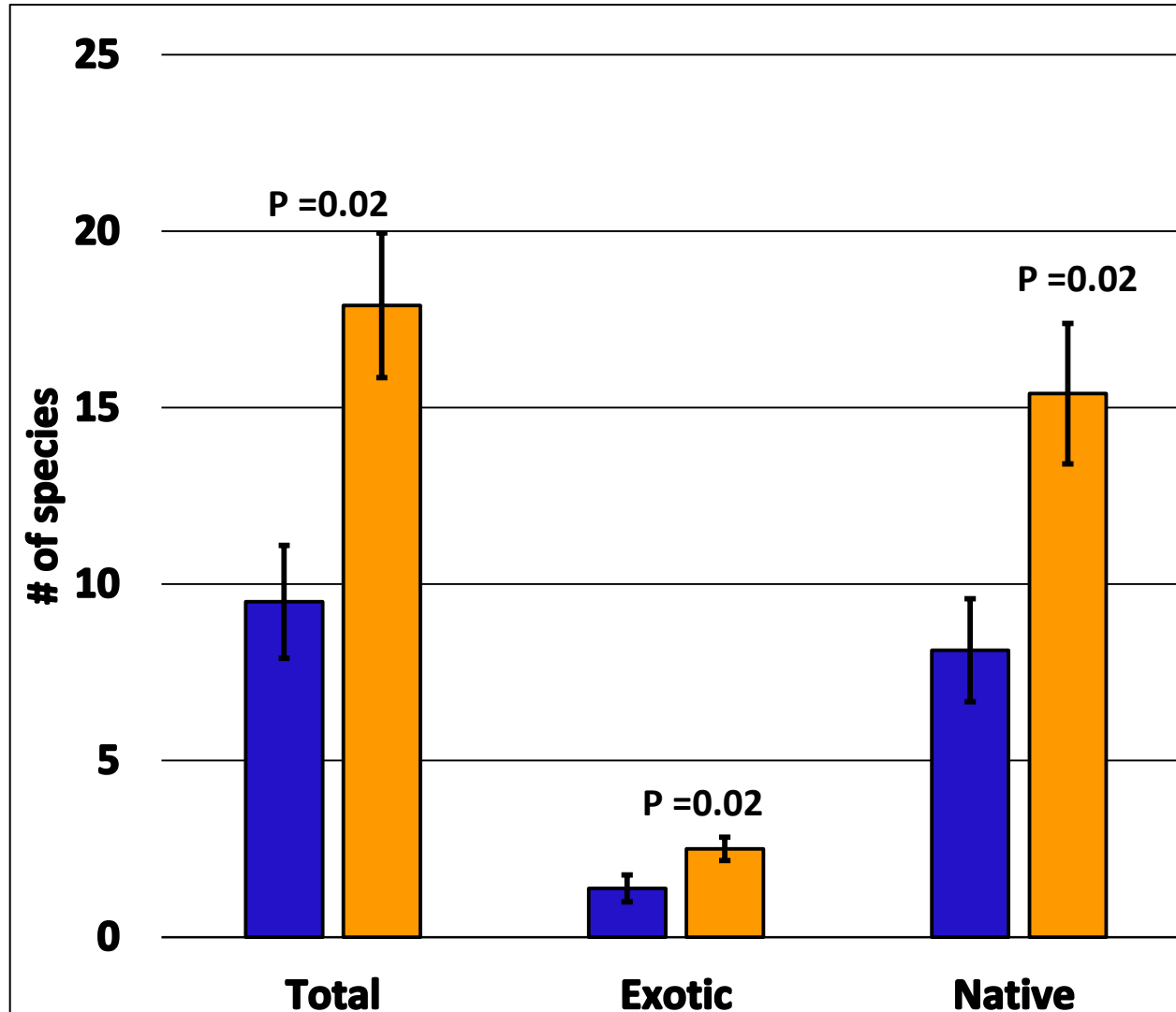


# Greater Summer Herb Cover 5 years After Honeysuckle Removal Mostly Natives



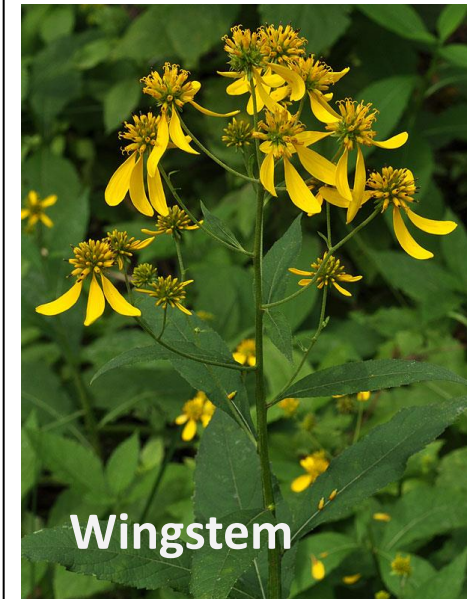


# More Summer Herb Species 5 years After Honeysuckle Removal



■ Honeysuckle  
■ Removed

N = 8  
paired plots  
(100m<sup>2</sup> each)





# Quality of Plant Community 2008 to 2013

## Some Good News!

- At least 123 species across 60 families\*
- 68% native to Kentucky (Our heritage!)
- 41 species of native herbs, 17 families
- 31 species of native trees
- 32 species with Coefficients of Conservatism  $\geq 5$

N= 629 1-m<sup>2</sup> quadrats  
dispersed throughout park

\*(2008 Parkwide Study by Pat Haragan:  
323 herbs, 62% native)

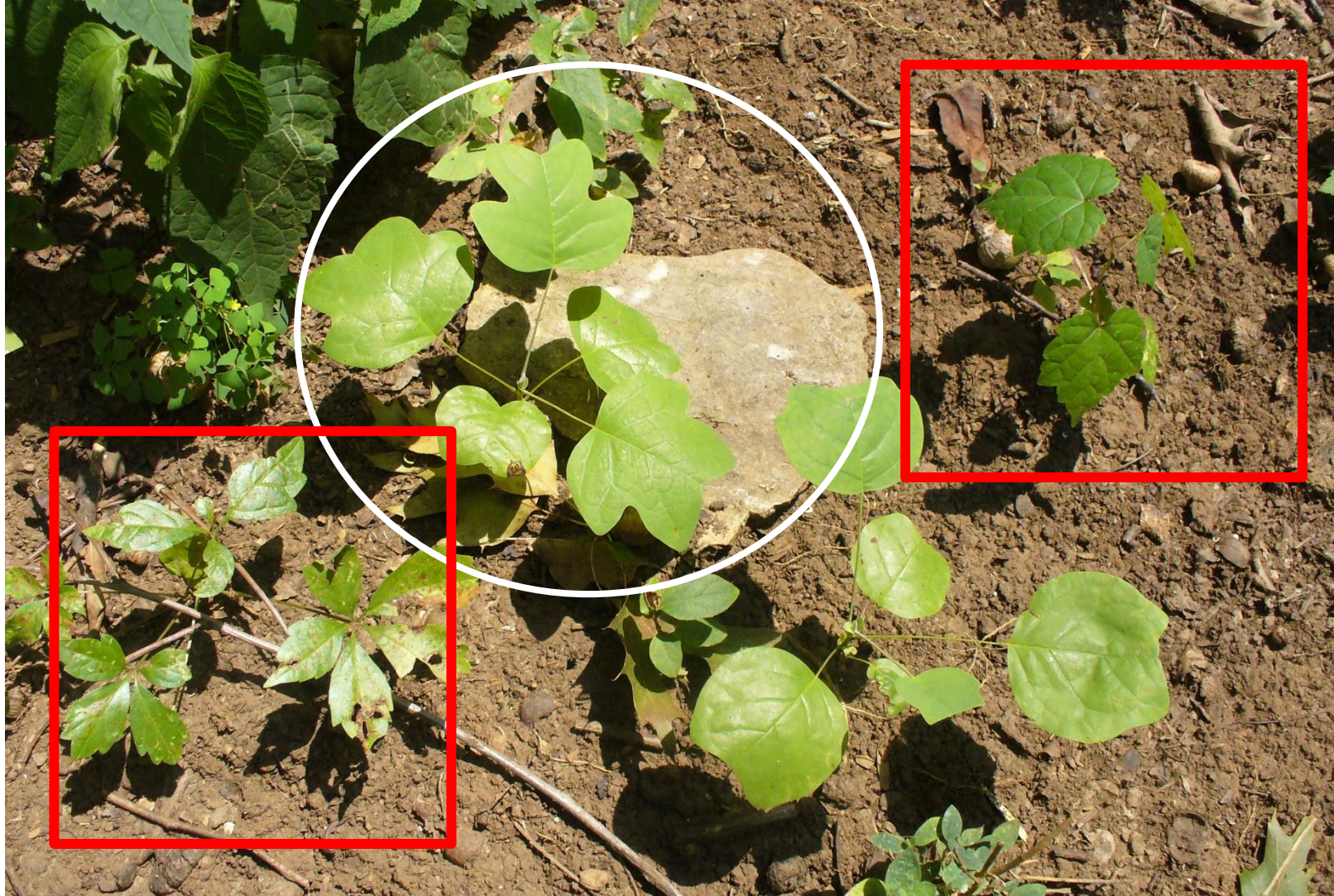
## Wildlife Responses ?



Delphinium tricornes



**But you can't just do one thing....**  
**Especially For Woody Vines      Trouble Ahead !**





**Invasive Plants Come Back.  
Some From Our Yards via Birds and Other Ways  
Natural Areas Managers Know How This Feels !**



**So....**



**Please, let's make their job easier!**

Don't allow invasive shrubs and vines to grow on your land!

Don't plant them.

Work with neighbors to remove them from fencelines.





# Benefits Your Neighborhood, Too!

Prevent Power Outages



Prevent Falling Trees & Limbs  
(January 2009 Ice Storm)



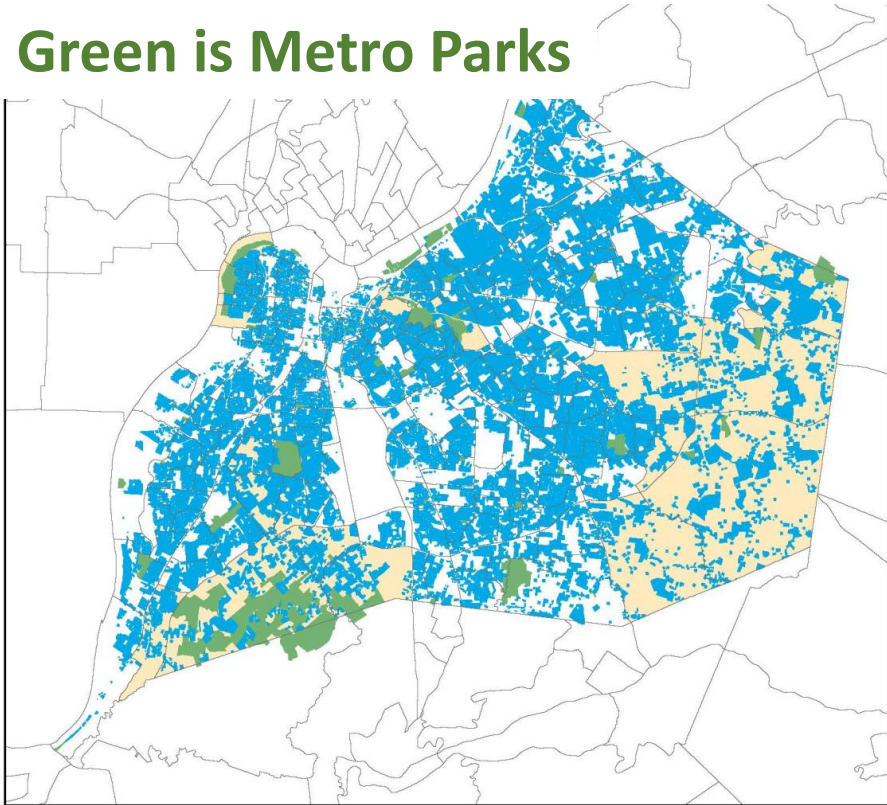


# Your Land and Our Natural Areas Are All Connected

Let's Be Good Neighbors And Support Our Native Species!

Blue is residential plantable space

Green is Metro Parks



Native Species Need Our Help Like Never Before !  
**SOS- SAVE OUR SPECIES!**

**First, Do No Harm** (Remove Invasive Plants)

**Second, Learn How You Can Replace Non-native Plants  
With Native Plants In Your Yards and  
Benefit Local Species Even More!**

(This afternoon's speakers)

## Legend

- Census tracts
- Residential, plantable land
- Census tracts surrounding major parks
- Metro parks



# THANKS!

Where can you get information on invasive exotic plants  
(species not to plant)?

Kentucky Exotic Plant Council: <https://www.se-eppc.org/ky/>

Kentucky Dept. of Fish And Wildlife:  
<http://fw.ky.gov/Fish/Pages/Nuisance-Species-Plans.aspx>